



The Cary Arboretum

of The New York Botanical Garden

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Wood Keeps Things Hot at Arboretum

Now that winter is here, the Arboretum's two wood-fired steel boilers are demonstrating and proving their efficiency at heating two building complexes on the grounds.

Large stacks of firewood, cut on the Arboretum's 2,000 acres, are being slowly consumed, as the boilers do their work of supplying most of the heat to the Conover House on Fowler Road, temporary site of the administrative offices, and to the Lovelace residence further north on the same road. Both buildings have nearby barns that also receive heat from the wood-burning boilers.

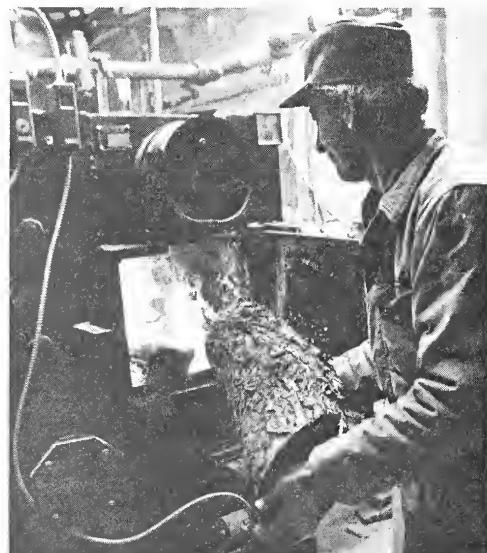
Winfried Schubert, Arboretum Operations Coordinator, who planned the wood-fueled operation, says the two boilers each are rated at 350,000 BTU capacity. At the Lovelace residence, where all buildings are well-insulated, the boiler can keep going in cold weather for about 20 hours on one loading, consisting of two wheelbarrows full of logs. At the Conover house, where the barn, which is used as a vehicle maintenance

center, is less well-insulated and is subject to frequent opening and closing of large barn doors, about three furnace loadings per day are required.

The boilers, made by Riteway Manufacturing Company of Harrisonburg, Virginia, operate by heating water which then circulates through the building's existing heating system. Both boilers are installed in barns near the residences, and the hot water is conveyed in underground pipes. Mr. Schubert estimates that the cost of the boilers will be recovered in fuel savings in three to four years, depending on the severity of the weather and the future price of fuel oil.

The boilers heat the circulating water to 200 degrees Fahrenheit. An automatically controlled fan comes into action as the water temperature drops to activate the fire in the furnace. Each building still has a conventional oil-fired furnace, which is automatically switched on if the water in

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Staff member Bob Cole loads log into wood-burning furnace.

Landscaping a Solar-Heated Building: A Planting With a Purpose

Just before winter closed in, the Horticulture staff of the Arboretum completed the first phase of unusual, environmentally-designed planting around the Plant Science Building. By next Spring, when the Arboretum expects to formally dedicate its new headquarters, the fruit of their work will be visible in "full, living color."

Because the building is set on the edge of a beautiful hemlock ravine, against a background of low, wooded hills, and with a foreground of natural meadowlands, the planting scheme for the building melds these landscape features with the man-made design close to the building. The "managed" landscape in the shadow of the jagged roofline of the solar-heated structure blends into the natural landscape, and vice versa.

Native plants are used in profusion, as well as plants from distant parts of the world that closely resemble those that grow nearer to the Arboretum's home. At every season of the year there will be plants of strong visual interest and beauty.

The overall landscaping plan was designed by Carlton B. Lees, senior vice-president of the New York Botanical Garden, and by Arboretum horticulturist Robert Hebb, who also supervised execution of the plan.

Of the trees set around the new building, hemlocks predominate, in order to continue the woodland feeling of the adjacent natural hemlock glen and to help screen the building from north winds. Principal trees used here are Canadian and Carolina hemlocks (*Tsuga*

canadensis and *T. caroliniana*).

Interspersed with the hemlocks are a large variety of other woodland plants, both native stock and their Asian counterparts: for example, Red Maple (*Acer rubrum*) Sorrel tree (*Oxydendrum arboreum*), a great many Carolina rhododendron (*R. carolinianum*), and Royal azalea (*R. schlippenbachii*), a species from Korea. Other plants used to set off the larger trees are drooping Leucothoe (*L. fontanesiana*), and many witch hazel, whose early spring blooms will contrast with the backdrop of the dark evergreens. Among the trees and along the road which passes the building also will be several species of azalea, shadblush, and chokeberry.

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Landscaping a Solar-Heated Building: A Planting With a Purpose

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For insulation purposes, earthen berms have been built up against the most exposed outer walls of the new structure. The berms in front of the building have been planted to Korean Stewartia, which has a handsome exfoliating bark, and exquisite white flowers during the summer. Nearby, silhouetted against the building are numerous specimens of Paperbark maple (*Acer griseum*), which displays a cinnamon-colored exfoliating bark and is particularly handsome against the winter snow.

Native ground covers have been used extensively between the trees and along the berms. Included among these are many types of fern, Southern evergreen ginger (*Asarum shuttleworthii*), many species of trillium, Oconee-bells (*Shortia galacifolia*), Foam flower (*Tiarella cordifolia*), Solomon's Seal, False Solomon's Seal, and numerous other native ground-cover plants.

A striking feature of the building is the three-sided terraced courtyard that brings light and glimpses of the outdoors from ground level to below-ground areas of the building, such as the Library reading room. The terraced steps of the courtyard have been heavily planted with native species that eventually will form a thick covering of greenery in many textures, broken only

by a fieldstone path leading down the steps. Readers working in the library and in other rooms facing this courtyard will look out on this terraced garden.

The courtyard plantings include many uncommon varieties of fern, carpets of Partridgeberry (*Mitchella repens*), Evergreen galax (*G. aphylla*), Native orchids, Trillium, and many other native plant species, both common and rare.

Climbing hydrangeas also have been planted, and these will be trained up the walls and columns in the courtyard. In the summer, many large tubbed plant specimens from the greenhouse will be set out at the entrance to the courtyard and along a deck that passes over it, to provide color accents.

At the main entrance to the Plant Science Building, which is approached via a wooden walkway, when the surrounding trees mature, the visitor will have the feeling of reaching the building through a woodland extension of the nearby forest. And midway along the wooden walkway close to the front door, a dramatic "view slot" has been cleared, to surprise the visitor with a long vista deep into the hemlock glen.

On the eastern front of the building, where a meadow extends to the nearby public highway, Sharon Turnpike, every effort is being made to preserve the meadow character of the area, so the building will appear to spring out of the bordering grasslands.

Hundreds of bulbs have been planted under trees along the building's driveway approach. The selection of bulbs includes daffodils, scilla, snowdrop, snowflake, crocus, and winter aconite.

The landscaping has been planned to provide an interesting and beautiful framework for the building at any season of the year. In the winter, the evergreens and tree species with unusual bark patterns will predominate. By late February or early March, witch hazel should bloom in specially selected, sheltered locations, yielding, in late March or April, to the massed color of the spring bulbs. Then will come the brilliant blossoms of azalea and rhododendron, trillium, orchids, and a profusion of wild flowers. In the heat of the summer, the tubbed greenhouse specimens will provide color. And as the weather begins to cool and the leaves start to turn, the brilliant colors of Fall foliage from the planting and in the woodlands will occupy the center of the outdoor stage.

Mr. Hebb likes to sum it all up by saying: "The Plant Science Building, with its solar collectors on the roof, functions very much like a plant, converting sunlight into other forms of energy. So it is very appropriate that this unique building be enveloped by a great variety of plants. In broad terms, that is the purpose behind our planting plan."

Thousand People Throng Gifford House Preview

More than 1,000 people turned out Sunday, December 4, for the Cary Arboretum's open house preview and holiday plant sale at the Gifford House, the Arboretum's new Education and Visitor Center.

Gifford House has recently been renovated to accommodate the growing needs of the Arboretum's education programs.

The handsome three-story Federal-style brick building, which was purchased by the Arboretum in 1974, was once the home of



Dr. Payne (rt.) greets Harding F. Bancroft, chairman of Arboretum Advisory Committee at Gifford House preview.

The plants in particular appealed to all ages.

Mrs. Sally Gifford O'Brien who was on hand to answer questions about the building's history. The Arboretum has published a pamphlet entitled "A Gifford House Memory Sampler" written and illustrated by Mrs. O'Brien, which was distributed to visitors and personally autographed by her. Tours of the house were given by Arboretum volunteers.

Visitors and friends of the Arboretum were encouraged to wander among the collection of exotic plants and unusual succulents. These special varieties of plants were cultivated and grown by the Arboretum's horticultural staff.

Another feature of the day were paintings and sketches by local artists Ruth Brunstetter and Nick Lomangino depicting scenes around the Arboretum. Original drawings of native birds drawn by the late Mrs. Elaine Smith were also on display.

A gift shop located on the main floor offered a variety of educational books on plants and gardens in addition to plant-hangers and crafts. The shop is staffed by the Nine Partners Garden Club and is open every day from 1:00 p.m. to 4:00 p.m. Mrs. Mae Corcoran coordinates the Garden Club volunteers.

Gifford House is now the headquarters for Education Coordinator Peter Dykeman who planned and supervised the Dec. 4 Preview. The Department's new telephone number is 677-5358.



Mrs. Sally Gifford O'Brien answers visitor's questions about history of building, formerly her family's residence.



Plant sale was popular with open-house visitors.

Wood Keeps Things Hot at Arboretum

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the wood-fired boilers drops below 140 degrees, such as on weekends or holidays when staff is not available to load the furnaces. The automatic controls, however, keep use of the oil-fired backup systems to a minimum.

The firewood is a normal by-product of clearing and pruning operations at the Arboretum. Much of it was cut last summer with the help of enrollees in the Government-assisted programs of SPEDY (Summer Program for Economically Disadvantaged Youth) and CETA (Comprehensive Employment and Training Act).

Two Arboretum staff members, Owen Vose and Richard Livellara, have become experts at operation and maintenance of the innovative wood-burning furnaces.

Around the Arboretum

Dr. Payne on Arts Council

The Arboretum Director, Dr. Willard W. Payne, has been elected a member of the Dutchess County Arts Council. In this connection, Dr. Payne is working on plans for outdoor concerts to be held on the Arboretum grounds next summer, and for exhibits of works of art related to the plant world, which will be displayed at the newly opened Gifford House and in the soon-to-open Plant Science Building. The Council has adopted as its slogan, "Dutchess County Is Culture County," and Dr. Payne is designing an official logo for the Council based on this theme.

Taxonomists Meet Here

In mid-December the Arboretum was host

to the Advisory Committee for Systematics Resources in Botany, a standing committee of the American Society of Plant Taxonomists. They met at the invitation of Dr. Payne, who is Chairman of the Committee and President of the Society. The purpose of the meeting was to collate information that will be incorporated in the second part of a report to the Society containing national policy recommendations for operation and support of systematics collections. Dr. Thomas S. Elias, an Assistant Director of the Arboretum, and Dr. Patricia K. Holmgren, Administrator of the Herbarium collection at the New York Botanical Garden, are both members of the Committee and participated in the three-day meeting.

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Tillman Writing Environmental Guidelines

Dr. Gus Tillman, the Arboretum's Wildlife Ecologist, has been asked to co-author an environmental manual to be used by private voluntary organizations, such as church and environmental groups, that are conducting assistance projects in underdeveloped countries. The other authors are Ann La Bastille, a Committeewoman of the Adirondack Parks Agency, who writes frequently on environmental matters, and Peter Freeman, an environmental consultant with Threshold, Inc., of Washington, D. C. The work is covered by a grant from the U. S. Agency for International Development, through the Mohonk Trust, which recently held a conference on the subject.

Elias on Forest Council

Thomas S. Elias, an Assistant Director of the Arboretum, has been appointed a member of New York State Governor Carey's Forest Resource Task Force, to work with the Department of Environmental Conservation on policies governing the State forests. Dr. Elias has also been selected as an alternate for the delegation from the Botanical Society of America that has been invited to visit the Peoples' Republic of China next May and June.

Goodland to World Bank

Dr. Robert Goodland, Assistant Director of the Arboretum, has been appointed to a new position as Ecologist on the staff of The World Bank. Dr. Goodland will start his duties in February, based in Washington, D.C.

During his six years at the Arboretum, Dr. Goodland brought international attention to the Arboretum's work in the field of environmental assessment. The Arboretum is proud that a member of its staff has been selected for such a prestigious position.

The "Outlook" section of the "Washington Post" on Sunday, December 10, published a major article by Dr. Goodland entitled "Triple Threat to Panama's Ecology." The article discusses the environmental hazards of three massive development projects in the Darien province of Panama: a proposed sea-level canal, extension of the Pan-American Highway, and construction of the Bayano hydroproject, the largest public works in Panama since the original canal was built. Dr. Goodland's article is a condensation of an invited paper that appeared in the November 1977 issue of OIKOS, Copenhagen. The "Washington Post" article was distributed by that newspaper to 200 other newspapers that subscribe to its news service.

In another area of journalism, Dr. Goodland's research on leaf nutrients was reported in Bob Boyle's "Scorecard" column in "Sports Illustrated" magazine in December.

88 Volunteers Get Recognition — and Thanks

Eighty-eight volunteers received official recognition certificates and a warm "thank-you" from the Cary Arboretum at the first Volunteer Recognition Evening, held on November 9 at the Gifford House Education and Visitor Center.

A wine-and-cheese-hour was followed by a formal program during which Dr. Willard W. Payne, Director, thanked the volunteers for their generous contribution of time and effort to the Arboretum programs. Dr. Peter A. Dykeman, Coordinator of Education, added words of appreciation and encouraged the volunteers to make use of the special privileges which are provided for them by the Arboretum, such as free courses, invitations to special functions, and discounts at the Arboretum shop.

Special citations were presented to seventeen volunteers who accumulated more than 100 hours of service in the previous year. Those who received these certificates were:

Diane Bandler
John Dorney
Tom Keto
John Knickerbocker
Allelu Kurten
Ginette LaLiberte
Dorothy Linde
Phil LoPresti
Rose Michaelis
Sue Mirando
Ellen Moyses
Richard Place
Lorraine Ramsey
Alice Sinon
Elaine Somers
Anne Strain
Betty Stratton

A special service award was also presented to Duncan Currie who contributed more than 300 hours of volunteer service to the Wildlife Department.

Volunteers are involved in the education, horticulture, wildlife, and administrative functions of the Arboretum. Since the formation of the volunteer program two years ago, more than 100 volunteers have contributed nearly 4,500 hours of service to the Arboretum. The program is co-ordinated by the Education Department.

Photos in this issue by Gary Griffen and Robin Parow.

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